

(No Model.)

2 Sheets—Sheet 1.

J. MASON.

MACHINE FOR UPSETTING RODS, BOLTS, &c.

No. 537,577.

Patented Apr. 16, 1895.

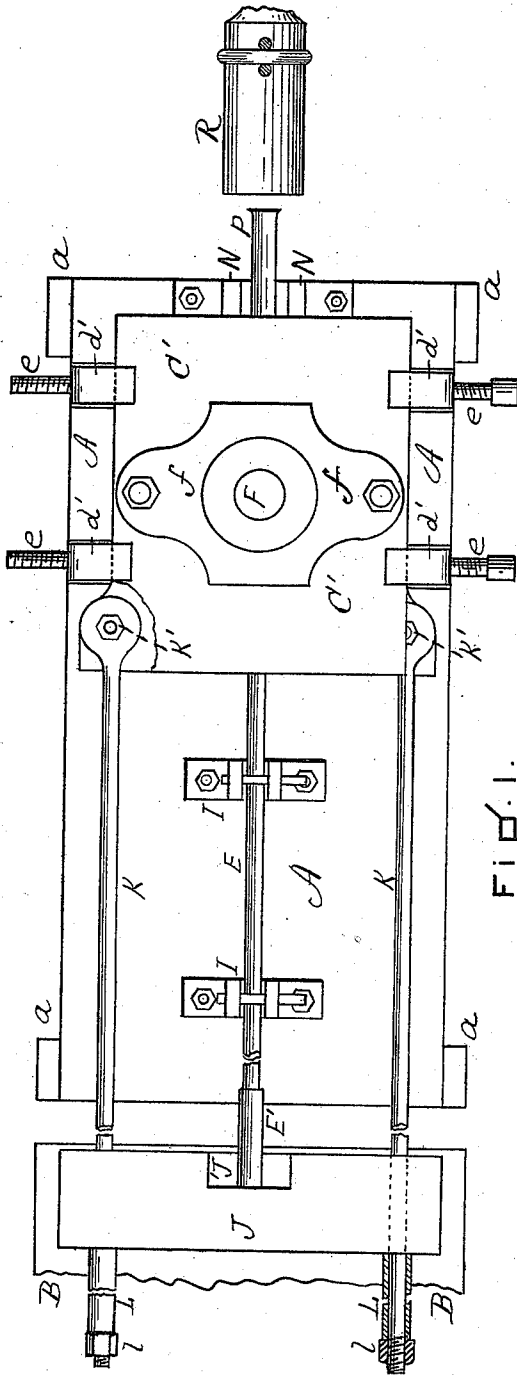


FIG. 1.

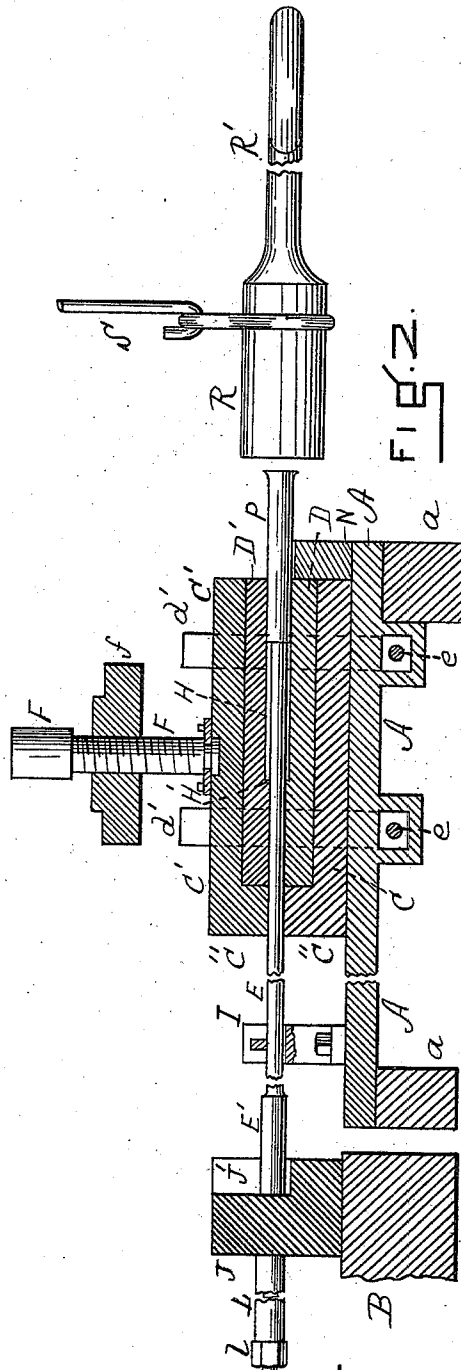


FIG. 2.

WITNESSES
E. A. Woodbury.
A. N. Bonney.

INVENTOR
Joseph Mason.
By his Atty.
Henry Williams.

J. MASON.

MACHINE FOR UPSETTING RODS, BOLTS, &c.

No. 537,577.

Patented Apr. 16, 1895.

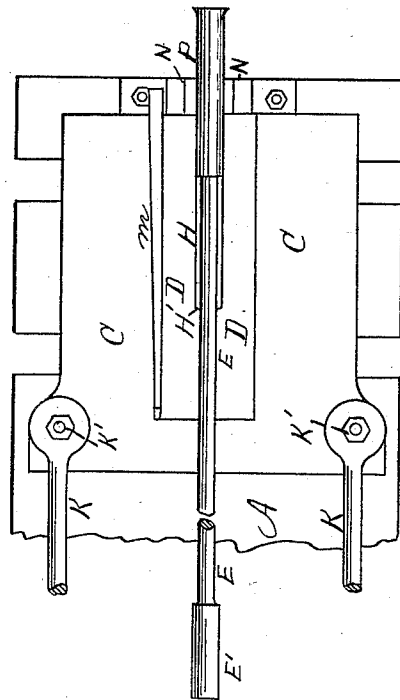


FIG. 4.

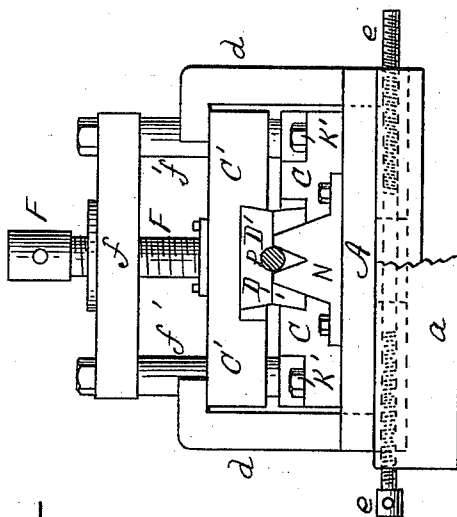


FIG. 5.

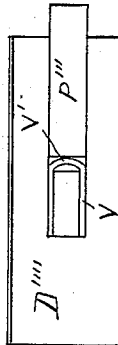


FIG. 7.

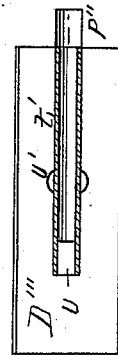


FIG. 8.



FIG. 9.



FIG. 10.

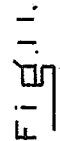


FIG. 11.

WITNESSES

C. A. Woodbury.
A. N. Bourne.

INVENTOR.

Joseph Mason
By his Atty.
Henry Williams.

UNITED STATES PATENT OFFICE.

JOSEPH MASON, OF BOSTON, MASSACHUSETTS.

MACHINE FOR UPSETTING RODS, BOLTS, &c.

SPECIFICATION forming part of Letters Patent No. 537,577, dated April 16, 1895.

Application filed September 12, 1894. Serial No. 522,829. (No model.)

To all whom it may concern:

Be it known that I, JOSEPH MASON, a subject of the Queen of Great Britain, residing at Boston, in the county of Suffolk and State of Massachusetts, have invented certain new and useful Improvements in Machines for Upsetting Rods, Bolts, &c., of which the following is a specification.

This is an upsetting machine in which the work is preferably done by means of a ram and plunger, and which is adapted more particularly, but not necessarily exclusively, to upsetting or heading bolts, rods, swivels and analogous articles used in the construction of bridges and boilers and in machine shops.

The invention consists in the novel construction and arrangement of parts hereinafter described and illustrated in the accompanying drawings, in which—

Figure 1 is a plan view of my improved machine, portions of the connecting rods and bolt being operated upon being represented as broken out, on account of their length, and another portion being represented as broken out and still another in horizontal section, the better to illustrate the invention. Fig. 2 is a longitudinal vertical section, a part being in elevation and portions being represented as broken out. Fig. 3 is a front elevation with a portion represented as broken out. Fig. 4 is a plan view showing the lower die, the upper die having been removed. In these figures the bolt is represented as having had one end upset or headed and in position to have its opposite end upset. Fig. 5 is an illustration of the completed product of the machine, *i. e.*, a bolt or rod upset at both ends. Fig. 6 is a plan view of the lower die slightly modified in construction, and shows a plunger provided with a socket in order to surround the end of the bolt or rod being operated upon. Fig. 7 shows the product of the modified die illustrated in Fig. 6. Fig. 8 is a plan view of the lower die still further modified, and a horizontal section of a tubular bolt or swivel being upset by a plunger of slightly modified shape. Fig. 9 is a view of the product of the modified device shown in Fig. 8. Fig. 10 is a plan view of a lower die, adapted to allow the plunger to upset an eccentric strap. Fig. 11 illustrates the product of the modification shown in Fig. 10.

Similar letters of reference indicate corresponding parts.

The frame of the machine comprises a main bed A, supported by suitable legs or feet *a*, and a smaller supporting block or frame B. The bed A supports a plate or frame C, which sustains the lower die D and the plate or frame C', within which is the upper die D'. The inner ends of these plates C C' are provided with end-pieces C'' which meet and are perforated to allow the bolt E to project through while it is being upset. The upper die is held down upon the lower die by means of the screw F which extends through the correspondingly threaded bar *f*, whose ends embrace and are guided by uprights *f'*, the lower ends of which are bolted to the frame, (Figs. 2 and 3). As an additional safeguard to prevent possible movement or forcing apart of the dies, upright clamps *d* are provided, said clamps extending from and being bolted to the bed A by bolts or screws *e*, and having their upper ends bent inwardly at *d'* over and upon the upper surface of the plate C'. The dies D D' are bored horizontally and coincidently to receive the rod E which is to be upset, the bore being of the exact diameter of said rod. The front portion of the dies is counter-bored at H from the shoulder H' to the front end of the dies, said counter-bore being of the length and diameter of the desired head on the rod E. This rod E, after extending rearward through the die-holders, extends through suitable supports or guides I, and its farther end rests against the wall of a recess J', formed in the supporting blocks or bunter block J, which rests on the bed B. The two parts of the machine, namely, the bed A, supporting the dies, and the bed B supporting the block J, are connected by rods K whose inner ends are bolted at K' to the bed A. The distance between the two parts of the machine may be regulated to accommodate the length of the rod to be upset, by means of the nuts *l* on the threaded rear ends of the bolts K, and the tubes L, which can be placed on either side of the bunter block J by removing said nuts and slipping the tubes off the rods K. Suitable wedges *m* (Fig. 4) may be provided for the dies, and a notched rest N may be secured to the bed in front of the dies, to assist in sustaining the plunger in case of necessity.

In the first four figures of the drawings, the rod E is supposed to have had one end upset at E'. Said rod is accordingly placed in the dies with its rear or upset end E' resting against the rear wall of the recess J' in the block J. The front or plain end of this rod is within the counter-bore H' formed in the dies, and at some little distance from the front edges of the dies. A plunger P, of diameter to fit within said counter-bore, is placed therein against the front end of the rod E, being supported, if necessary, by the notched supporting piece N. A heavy ram R is suspended by suitable means S from the ceiling or other support, and is grasped by the handle R' and impinged with great force against the end of the plunger P. This operation is repeated until the portion of the rod within the counter-bore H is upset into the shape shown at the opposite end E', by being forced into and filling said counter-bore. The product is shown in Fig. 5. The rod is then released by loosening the screw F and, if necessary, the clamping screws e.

25 In order to upset different articles, the dies must necessarily differ somewhat in shape, and frequently the same is true of the plungers. In the modification shown in Fig. 6 the lower die D'' is provided with a bore T, which is enlarged and counter-bored at T'. The front end of a plain rod t projects into a longitudinal opening or socket in the plunger P', the result of the blows of the ram upon which is to spread the rod into the counter-bore, and form it into the shape shown in Fig. 7.

30 In the modification shown in Fig. 8, the die is provided with a bore U, extended into an annular recess U'. A tube t' is placed in said bore and is formed up into the shape shown in Fig. 9 by the plunger P'' of even diameter with said tube, but having an extension smaller in diameter and projecting into the tube.

In Fig. 10 a die D''' is shown, having a recess adapted to receive the staple shaped article V, the curved central portion V' of which is upset into a straight thicker part, as shown in Fig. 11, by the blows of the plunger P'''.

Having thus fully described my invention, what I claim, and desire to secure by Letters Patent, is—

1. In a machine of the character described, the combination of the separated frames A and B, the supporting plate C sustaining the lower die, the plate C' sustaining the upper die, said plates being provided with end pieces C'' coincidently perforated to receive the bolt which is to be upset, the lower and upper dies D D' horizontally coincidently bored and counterbored and provided with the shoulder H', the uprights or guides f', the screw F and bar f arranged on said screw and guided by said uprights, the clamps d bolted to the bed A and bent inwardly at d' to extend over the upper surface of the plate C', the bunter block J formed with the recess J' and supported by the bed B, the connecting rods K secured at one end to the bed A and at the other end adjustably secured to the bunter block, a plunger, and a suitably supported ram, substantially as described.

2. In a machine of the character described, the combination of the frames A B, supporting plates C C' and dies D D', recessed bunter block J J', connecting rods K extending from the frame A through the bunter block, tubes L placed upon said rods and adjusting bolts l screwing on the outer ends of said rods, the notched rest N secured to the bed A in front of the dies for sustaining the plunger, a plunger, and a ram, substantially as set forth.

JOSEPH MASON.

Witnesses:

HENRY W. WILLIAMS,
E. A. WOODBURY.